Topics on International Programs: A Code S Perspective

Presentation to

International Project Management Program (IPM-19)

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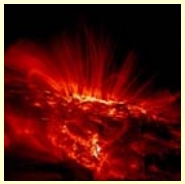


International Partnerships: Costs and benefits

- **Space Act of 1958 provides for international cooperation**
  - Most of current OSS missions have foreign contributions
- **Partnerships have both advantages and disadvantages**
- **Some cooperative efforts have been great successes**
  - But there have been some notable problems – on both sides
- **No one knows these issues better than the NASA managers who have to successfully deliver these missions!**

1962 Principles

1. Designation by each participating government of a central agency for the negotiation and supervision of joint efforts
2. Agreements on specific projects rather than generalized programs
3. Each country's acceptance of financial responsibility for its own contributions to joint projects
4. Projects of mutual scientific interest
5. General publication of scientific results

-- NASA, *International Programs*, 1962, NASA Historical Reference Collection

Framework for International Cooperation

- U.S. cooperation with foreign partners is generally based on the "no exchange of funds" principle
- U.S. scientists obtain NASA funding for international collaboration via a merit-based peer review process
- Flight missions are divided into two major categories:
  - strategic missions
  - community-formulated missions
- Cooperative work can also be proposed in the research grants program
- Program planning and selection processes differ between these categories, but each offers opportunities for cooperation
- Roles and responsibilities are documented in LOAs and MOUs

Issues with Foreign Partnerships

- **Foreign partners and program formulation**
  - Bootstrapping
  - Programs versus projects
  - Synchronization
  - Competitive pressures
- **Foreign partners in project study and implementation phases**
  - Export control and industry
  - Export control and the universities
  - Management interfaces
- **Foreign partners and termination**
  - Extended missions
  - Pathological cases

Strategic Missions

- Strategic ("facility-class") missions are those included in the Space Science Enterprise Strategic Plan
- The Enterprise Strategic Plan is developed through a formal planning process that occurs every three years
- International cooperation in these missions can develop via two routes:
  - (1) formal agency-to-agency negotiations are conducted about roles and responsibilities for direct non-U.S. participation
  - (2) participants are selected by a competitive, peer-reviewed process; winning team(s) may include (or be led by) non-U.S. collaborators
- Route (1) is the primary path for agency-to-agency cooperation; early consultation and inclusion in the Strategic Plan are critical
- The no exchange of funds principle applies

Community–Formulated Missions

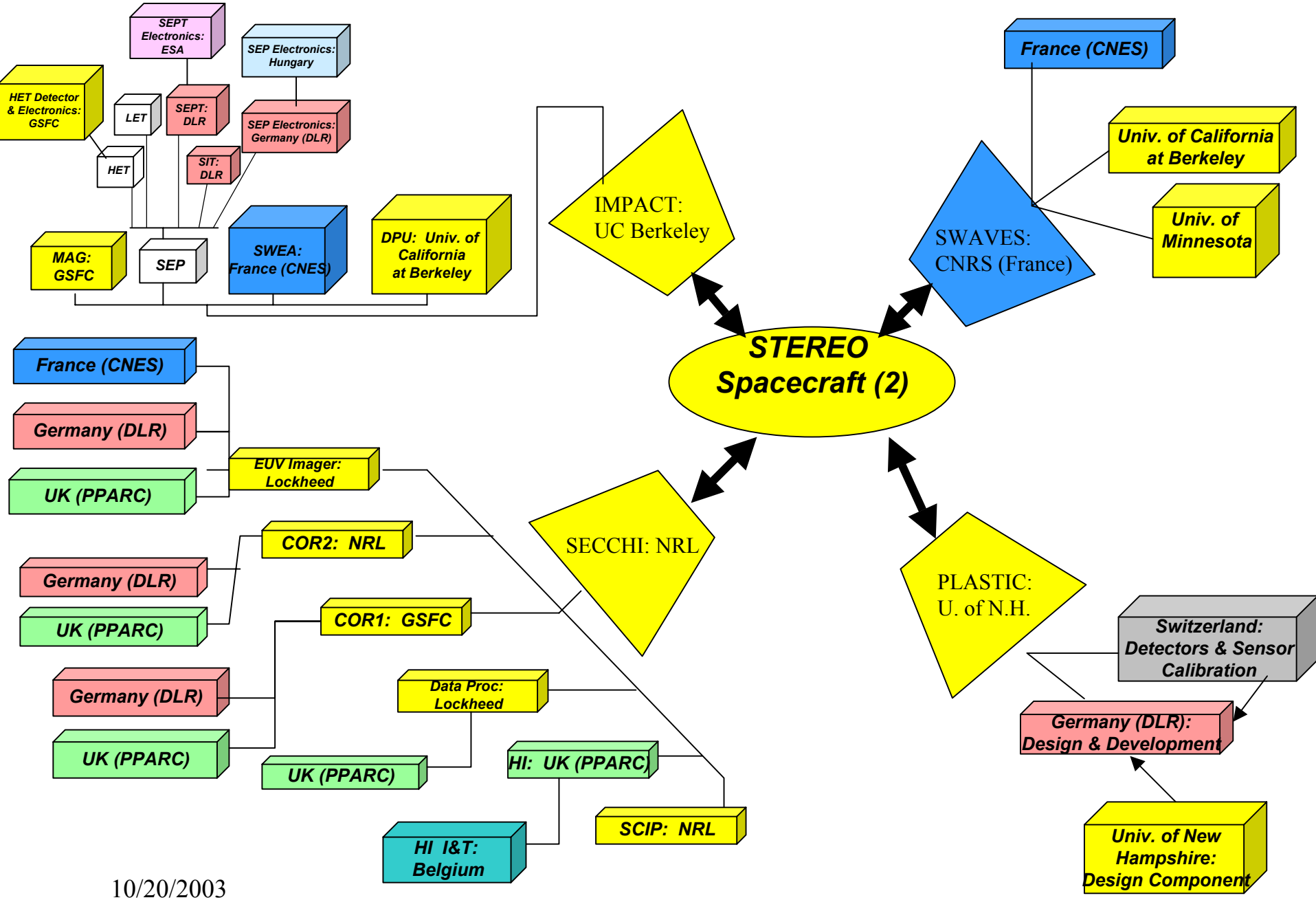
- These include the Discovery, Explorer, and proposed New Frontier programs
- To be selected, a proposal must address Strategic Plan goal(s)
- Announcements of Opportunity (AOs) are issued for Discovery and Explorer approximately every 18 months
- Two routes to cooperation:
  - Cooperative U.S.-foreign proposals can be submitted; non-U.S. contribution are constrained (e.g., up to 100% of NASA cost)
  - U.S. investigators may propose for support to collaborate on non-U.S. missions under "Mission of Opportunity" feature up to AO maximum value
- Subject to peer evaluation for scientific merit with other mission proposals; no exchange of funds principle applies

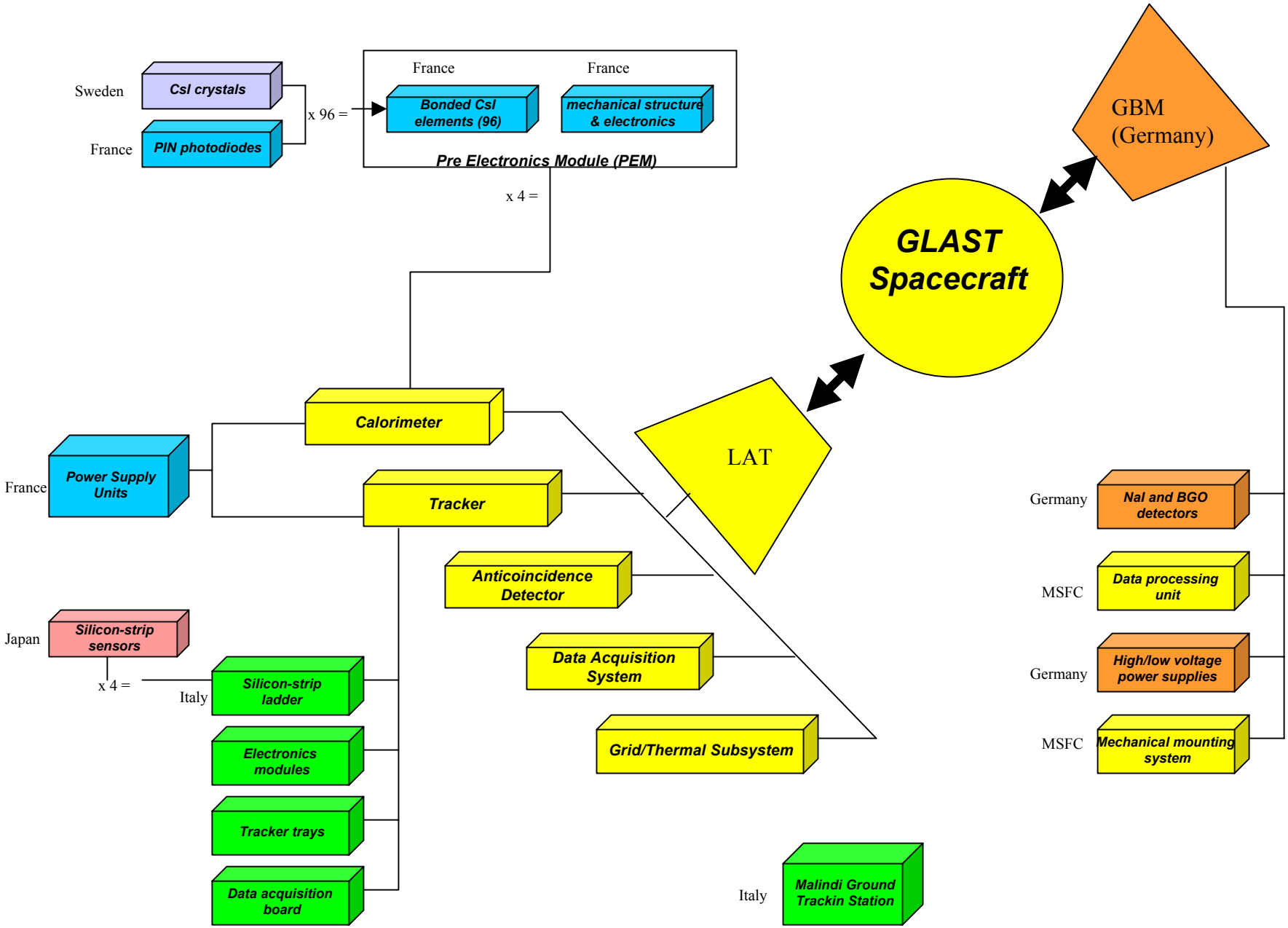
Export Control

- Purpose: To control transfer of sensitive technology
- Scope: All U.S. persons and institutions
- Mechanisms
  - International Traffic in Arms Regulations (ITAR)
  - Export Administration Regulations (EAR)
  - Missile Technology Control Regime (MTCR)
- The NASA Export Control Program coordinates NASA conformance to these regulations

ITAR

- U.S. Munitions List (USML) contains 21 categories of "Defense Articles/Services"
- All Defense Articles are subject to ITAR
  - Category IV includes launch vehicles and rockets
  - Category XV: Spacecraft and Associated Equipment
- Defense Articles include "Technical Data" related to items on the USML
- However: Technical Data do not include
  - information in the public domain
  - basic marketing information about function, purpose, or general system description of a Defense Article


SEPT Electronics: ESA
SEP Electronics: Hungary
HET Detector & Electronics: GSFC
LET
SEPT: DLR
SEP Electronics: Germany (DLR)
HET
SIT: DLR
MAG: GSFC
SEP
SWEA: France (CNES)
DPU: Univ. of California at Berkeley
IMPACT: UC Berkeley
France (CNES)
Univ. of California at Berkeley
Univ. of Minnesota
SWAVES: CNRS (France)
STEREO Spacecraft (2)
France (CNES)
Germany (DLR)
UK (PPARC)
EUV Imager: Lockheed
COR2: NRL
Germany (DLR)
UK (PPARC)
COR1: GSFC
Germany (DLR)
UK (PPARC)
Data Proc: Lockheed
UK (PPARC)
HI: UK (PPARC)
HI I&T: Belgium
SCIP: NRL
SECCHI: NRL
PLASTIC: U. of N.H.
Switzerland: Detectors & Sensor Calibration
Germany (DLR): Design & Development
Univ. of New Hampshire: Design Component


Sweden
CsI crystals
France
PIN photodiodes
x 96 =
France
Bonded CsI elements (96)
France
mechanical structure & electronics
Pre Electronics Module (PEM)
x 4 =
GBM (Germany)
GLAST Spacecraft
LAT
Calorimeter
France
Power Supply Units
Tracker
Anticoincidence Detector
Data Acquisition System
Grid/Thermal Subsystem
Japan
Silicon-strip sensors
x 4 =
Italy
Silicon-strip ladder
Electronics modules
Tracker trays
Data acquisition board
Germany
NaI and BGO detectors
MSFC
Data processing unit
Germany
High/low voltage power supplies
MSFC
Mechanical mounting system
Italy
Malindi Ground Trackin Station